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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/634,381 | 08/04/2003 | Ken Ioka | 03468/LH | 8180 |
| 1933 | 7590 | 08/02/2006 | EXAMINER | |
| FRISHAUF, HOLTZ, GOODMAN & CHICK, PC | | | MARTIN, LAURA E | |
| 220 Fifth Avenue | | | ART UNIT | |
| 16TH Floor | | | PAPER NUMBER | |
| NEW YORK, NY 10001-7708 | | | 2853 | |

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/634,381 | IOKA ET AL. | |
| | Examiner | Art Unit | |
| | Laura E. Martin | 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-7,9-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (US 6464332) in view of Beauchamp et al. (US 6474765).

Silverbrook discloses:

As per claims 1 and 3: an image forming apparatus comprising a recording head unit in which a plurality of recording heads are arranged in substantially the same direction as an arranging direction of recording elements such that an overlapped region is formed between the heads (column 2, lines 40-53); a detector which detects a width of the overlapped region of the recording heads (abstract); and an image data distributor which distributes image data input to each of said plurality of recording heads, in accordance with the detected width of the overlapped region between the heads (column 2, lines 40-53).

As per claims 7 and 9: an overlapped region between the printheads (column 2, lines 40-53)

Silverbrook does not disclose:

As per claim 1: a predetermined test chart printed using the recording head unit.

As per claim 3: a detector which detects a set angle of a region; and a predetermined test chart printed using the recording head unit.

As per claim 7: if at least one of said plurality of recording heads is replaced or adjusted a predetermined test chart is printed and the width of region of each of said plurality of recording heads is detected again from the printed test chart.

As per claim 9: if at least one of said plurality of recording heads is replaced or adjusted a predetermined test chart is printed and the set angle and width of region of each of said plurality of recording heads is detected again from the printed test chart.

Beauchamp discloses:

As per claim 1: a predetermined test chart printed using the recording head unit (column 6, line 40-column 7, line 27).

As per claim 3: a detector which detects a set angle of a region; and a predetermined test chart printed using the recording head unit (column 6, line 40-column 7, line 66).

As per claim 7: if at least one of said plurality of recording heads is replaced or adjusted a predetermined test chart is printed and the width of region of each of said plurality of recording heads is detected again from the printed test chart (column 7, lines 12-27).

As per claim 9: if at least one of said plurality of recording heads is replaced or adjusted a predetermined test chart is printed and the set angle and width of region of each of said plurality of recording heads is detected again from the printed test chart (column 7, lines 12-27).

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming apparatus taught by Silverbrook with the disclosure of Beauchamp et al. in order to improve printing quality.

Claims 4, 6, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (US 6464332) and Beauchamp et al. (US 6474765), and further in view of Noyes et al. (US 6775022).

Silverbrook and Beauchamp et al. disclose:

An image forming apparatus.

Silverbrook and Beauchamp et al. do not disclose:

As per claim 4 and 6: A notification unit which, if the detected set angle or width of the overlapped region of one of the said plurality of recording heads exceeds a predetermined allowable range, notifies a message demanding replacement or adjustment.

As per claims 12 and 14: a plurality of recording head units are provided in correspondence with different color outputs.

Noyes et al. discloses:

A notification unit which, if the detected set angle or width of the overlapped region of one of the said plurality of recording heads exceeds a predetermined allowable range, notifies a message demanding replacement or adjustment (column 56, lines 21-67).

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As per claims 12 and 14: a plurality of recording head units are provided in correspondence with different color outputs (column 7, lines 3-12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming apparatus taught by Silverbrook as modified with the disclosure of Noyes et al. in order to allow for easier operation.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (US 6464332) and Beauchamp et al. (US 6474765), and further in view of Yoshino et al. (US 5898443).

Silverbrook and Beauchamp et al. disclose:

An image forming apparatus.

Silverbrook and Beauchamp et al. do not disclose:

As per claims 12 and 13: whether image data which corresponds to the overlapped region between the heads is a line image is determined, and if the image data is found to be a line image, the image data is distributed that no complementary printing is performed in the overlapped region.

Yoshino et al. discloses:

As per claims 12 and 13: whether image data which corresponds to the overlapped region between the heads is a line image is determined (column 12, lines

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30-46), and if the image data is found to be a line image, the image data is distributed that no complementary printing is performed in the overlapped region (figures 15a-15c).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming apparatus taught by Silverbrook et al. as modified with the disclosure of Yoshino et al. in order to provide a higher quality printing apparatus.

Response to Arguments

Applicant's arguments with respect to claims 1, 3, 5, 6, 7, 9-12, and 14 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER